



Preface

The purpose of this text is to introduce the student to the fascinating and diverse science of zoology. It is by no means an all-inclusive work, but represents what we consider to be the more basic aspects of zoology, together with discussions of current research findings. Given this perspective, it is hoped that students will become aware of the many areas of zoological study that remain open to new discoveries. This text can then serve as a matrix for students who wish to pursue the study of zoology in greater depths.

The approach is a balance between form and function, using representative animals as "types" to illustrate and underscore the systematic groups as they are studied. The unity of the animal kingdom is a basic thread running throughout the work. Similarities and differences between animal groups studied serve to highlight this concept of unity.

The text of 31 chapters is divided into five parts. Part One, "An Approach to Zoology," consisting of the first four chapters, introduces the student to the realm, scope, chemical and cellular basis, and phyletic organization of zoology. Part Two, "Animal Diversity: Invertebrates," containing eleven chapters, begins with the protists and continues through the more complex phyla of invertebrates. Particular focus is on basic body plans and the structure and function of representative invertebrates, with special attention to segmented worms and joint-footed animals. Levels of organization and comparison of structure culminate in this section with a look at those animals related to the vertebrates, the echinoderms.

The six chapters that comprise Part Three, "Animal Diversity: Vertebrates," begin with the primitive chordates and include representative animals from the lampreys, sharks and bony fish, frogs, reptiles, and birds. The last chapter of this section, on mammals, introduces this diverse and interesting class of vertebrates as a unique group exhibiting a wide range of adaptations.

The inherent unity of the animal kingdom, conveyed throughout the text, is reinforced from a form and function viewpoint. Part Four stresses, "The Design and Function of Organ Systems." The first chapter in this section focuses on the coordination of animal behavior, including both the history and current research findings in this field. The remainder of this section presents a review of the development of organ systems, with greater details of the functioning and interdependence of the integumentary, skeletal and muscular, digestive and excretory, circulatory and respiratory, and nervous systems.